

First Named Inventor: Zinc-Eddine Boutaghou

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14. The method of claim 9 wherein a thickness of the first material is as little as about half the thickness of the second material.

15. (New) The slider of claim 3 wherein the first material and the second material interface at a single latitudinal plane.

16. (New) The slider of claim 3 wherein the latitudinal plane separates the front portion from the rear portion, wherein the front portion of the slider body is composed entirely of the first material and wherein the rear portion of the slider body is composed entirely of the second material.

#### REMARKS

##### I. Claim Objections

The Office Action objected to claim 3 and suggested that the word "where" should be changed to "wherein." This correction has been made in amended claim 3.

The Office Action objected to claim 5 and suggested that the dependency of claim 5 should be from claim 3 rather than claim 4. This correction has been made in amended claim 5.

##### II. Claim Rejections Under 35 U.S.C. Section 112

The Office Action rejected claims 4, 5, 13 and 14 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. The Office Action states that claims 4 and 13 are indefinite because the term "as much as about" lacks some standard in the specification for measuring the degree intended. Similarly, the Office Action states that claims 5 and 14 are indefinite because the term "as little as about" lacks some standard in the specification for measuring the degree intended.

Applicants respectfully submit that the use of the term "about" is permissible. "As a general proposition, broadening modifiers are standard tools in claim drafting in order to avoid reliance on the doctrine of equivalents in infringement actions." MPEP § 2173.05(b). The descriptive word

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"about" is not indefinite; its meaning is not broad and arbitrary. *Ex parte Eastwood*, 163 USPQ 316, 317 (Pat. Off. Bd. App. 1968). "Rather, the term is clear but flexible and is deemed to be similar in meaning to terms such as 'approximately' or 'nearly'." *Ex parte Eastwood*, 163 USPQ at 317. In view of the foregoing, Applicants respectfully submit that claims 4, 5, 13 and 14 are definite and distinctly claim the subject matter which Applicants regard as the invention. Therefore, withdrawal of the rejection under 35 U.S.C. § 112, second paragraph, is respectfully requested.

### III. Claim Rejections Under 35 U.S.C. Section 102

Claims 1, 2 and 3 were rejected under 35 U.S.C. § 102(b) as being anticipated by Harada, et al., U.S. Patent No. 5,276,573. However, Harada does not teach each element of claims 1, 2 and 3. With respect to claim 1, Harada does not teach a "means for supporting the transducer so that the transducer is at a closest position with respect to the disk during flight." An equivalent means must perform the identical function specified in the claim by the corresponding structure, materials or acts in the specification or equivalents thereof. MPEP § 2181. In support of the rejection, the Office Action cites Col. 7, lines 34-53, which in relevant part state that the head 4 extends "in a conventional manner, to a lowermost extremity of the rail 6 of the float side so as to be as near as possible to the recording medium during operation." However, the aforementioned disclosure does not teach the limitation of claim 1 that the transducer is closer than any other portion of the slider to the recording medium during operation. Harada teaches only that with a magnetic head having a conventional construction, it is desirable that the head 4 floats as near as possible to the recording medium during operation. (Col. 7, lines 46-53). It is well known that as the average flying height of a slider decreases, the transducer achieves greater resolution between the individual data bit locations on the disk. Therefore, it is desirable to have the transducers fly as close to the disk as possible. (Background of the Invention, page 3, lines 18-21). However, this is not the same as constructing a slider with a means for supporting the transducer so that the transducer is at a closest position with respect to the disk during flight.

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This distinction is illustrated in the figures of the instant application. In FIG. 3, describing a slider of conventional construction, pole tip fly height 64 is illustrated, and the accompanying discussion explains the goal of decreasing the pole tip fly height. (Page 9, lines 1-18). Harada teaches a similar goal of decreasing the pole tip fly height. However, this teaching is in sharp contrast to the teachings of the present invention, illustrated, for example, at FIG. 6. In the instant application, the pole tip fly height 64 is not only as minimal as possible, but is also the mechanical close point fly height 62 of the slider. (Page 12, lines 9-11). Therefore, the transducer is at a closest position with respect to the disk during flight. In contrast, Harada teaches only that the head is as close to the disk as possible, but does not teach that it is at a closest position with respect to the disk during flight. Because the identical function is not performed by Harada and this element is a limitation of independent claim 1, Harada does not anticipate claim 1.

With respect to amended claim 2, Harada does not teach a composite slider body with a front portion composed of a first material and a rear portion composed of a second material. Rather, Harada teaches a ceramic main body 3 that extends fully from the leading edge of the slider to the trailing edge of the slider. Harada also teaches an insert substrate 20 made of silicon which is fixed in a channel opening of the main body 3, also extending fully from a leading edge to a trailing edge of the slider body. (FIG. 3; col. 7, lines 34-41). The insert substrate 20 includes a substantially recessed portion 21 at a rear portion of the slider, creating a transverse perpendicular step 22 in a middle region. (Col. 7, lines 60-66). Thus, in the Harada slider, the front portion is composed of both ceramic and silicon materials, and the rear portion is also composed of both ceramic and silicon materials. This teaching does not anticipate claim 2, which states that a front portion is composed of a first material and a rear portion is composed of a second material.

Moreover, claim 2 requires that the air bearing surface comprises the front portion and the rear portion. As explained in the application specification, with reference to Fig. 2B, "air bearing surface 40 is generally considered to include cross rail 32, side rails 34, and center rail 36, but not cavity 38." (Page 7, lines 26-27). Applying this definition to Harada, the air bearing surface includes only rails 6 of ceramic main body 3. Because insert substrate 20 is analogous to cavity 38, it is not

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part of the air bearing surface. Therefore, Harada does not meet the limitation of the air bearing surface comprising the front portion and the rear portion, the front portion composed of a first material and the rear portion composed of a second material. For the foregoing reasons, Harada does not anticipate claim 2.

With respect to claim 3, Harada does not teach that an interface of the first material and the second material comprises a latitudinal plane substantially perpendicular to the air bearing surface. It can be seen from Harada's FIG. 3 that two of the interfaces between ceramic body 3 and insert substrate 20 are longitudinal planes perpendicular to the air bearing surface. The other interface surface between ceramic main body 3 and insert substrate 20 is a longitudinal plane parallel to the air bearing surface. Harada does not teach an interface of the first material and the second material as a latitudinal plane substantially perpendicular to the air bearing surface, as required by claim 3. Therefore, Harada does not anticipate claim 3. As discussed above, Harada does not anticipate claims 1, 2 and 3, and withdrawal of the rejection of these claims under 35 U.S.C. § 102(b) is respectfully requested.

#### **IV. Claim Rejections Under 35 U.S.C. Section 103**

##### **A. Rejection In View of Harada and Chang**

The Office Action rejected claims 4, 5 and 6 under 35 U.S.C. § 103(a) as being unpatentable over Harada in view of Chang, et al., U.S. Patent No. 6,385,011. Claims 4-6 depend from claim 3, which has been discussed with respect to Harada above. Chang teaches that a thin film 104 is formed upon the surface of a recessed area 90. (Col. 4, lines 16-17; FIG. 3). This is similar to the Harada teaching of an insert substrate 20 formed within the channel between two side rails 6 and extending the full length of the slider body. (Col. 7, lines 54-56; FIG. 3). Chang further teaches a second thin film layer 204 deposited on the side of the slider opposite the air bearing surface. (Col. 6, lines 1-20; FIG. 8). A teaching in Chang of two thin film layers deposited on opposite latitudinal surfaces of an air bearing slider, even in combination with the teachings of Harada discussed above,

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do not render obvious the subject matter of claims 4-6. In order to reject a claim under 35 U.S.C. § 103, the prior art references when combined must teach or suggest all of the claim limitations. See M.P.E.P. 2143. Even in combination, Harada and Chang do not teach, suggest or otherwise render obvious a slider in which an interface of the first material and the second material comprises a latitudinal plane substantially perpendicular to the air bearing surface, and wherein the pole tip is at a mechanical close point with respect to the disc during flight. Therefore, claims 4-6 are not obvious in view of Harada and Chang, and Applicants respectfully request withdrawal of the rejection under 35 U.S.C. § 103(a).

**B. Rejections In View of Harada, Chang and Tabuchi**

The Office Action rejected claim 7 under 35 U.S.C. § 103(a) as being unpatentable over Harada and Chang and further in view of Tabuchi, U.S. Patent No. 5,764,832. The Office Action states that Tabuchi discloses in FIG. 22 a lapping durability of the first material being greater than a lapping durability of the second material and directs Applicants to column 16, lines 19-31. However, Applicants cannot find, either in FIG. 22 or in column 16, any reference to a lapping durability of a first material being greater than a lapping durability of a second material.

Moreover, claim 7 depends from claim 6, which was discussed above with respect to Harada and Chang. Tabuchi adds nothing to the teachings of the references which would render claim 7 unpatentable. Tabuchi does not even teach an air bearing slider, but rather is directed to an integrated semiconductor optical device having laminated layers of an optical component. (Col. 6, lines 35-48). Thus, even in combination, the Harada, Chang and Tabuchi references do not teach, suggest or otherwise render obvious the subject matter of claim 7. Therefore, Applicants respectfully request withdrawal of the rejection of claim 7 under 35 U.S.C. § 103(a).

**C. Rejections In View of Harada, Chang and Tokuyama**

The Office Action rejected claim 8 under 35 U.S.C. § 103(a) as being unpatentable over Harada and Chang and further in view of Tokuyama, et al., U.S. Patent No. 5,886,856. The

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Examiner cites Tokuyama for teaching a composite slider wherein a first material is AlTiC and the second material  $\text{Al}_2\text{O}_3$ . Even so, it is the combination of this element with the other elements of claim 8 which renders claim 8 patentable. Claim 8 depends from claim 6, which has been discussed above with respect to Harada and Chang. Tokuyama adds nothing to these teachings to render the subject matter of claim 8 unpatentable. Therefore, Applicants respectfully request withdrawal of the rejection of claim 8 under 35 U.S.C. § 103(a).

**D. Rejections In View of Harada and Tabuchi**

The Office Action rejected claims 9-12 under 35 U.S.C. § 103(a) as being unpatentable over Harada in view of Tabuchi. The Harada and Tabuchi teachings have been discussed above. Additionally, while Tabuchi shows a composite wafer in FIG. 22, the reference has nothing to do with air bearing sliders, and the Tabuchi structure does not include any air bearing surfaces. "[T]eachings of references can be combined *only* if there is some suggestion or incentive to do so." *ACS Hosp. Sys., Inc. v. Montefiore Hosp.*, 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984) (emphasis in original). "The mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification." *In re Fritch*, 23 USPQ2d 1780, 1783-84 (Fed. Cir. 1992).

Because the Harada and Tabuchi references are directed to completely different technologies, and there is no suggestion or motivation for combining the references, such a combination is improper. "It is impermissible to use the claimed invention as an instruction manual or "template" to piece together the teachings of the prior art so that the claimed invention is rendered obvious. [The Court of Appeals for the Federal Circuit] has previously stated that "[o]ne cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention." *In re Fritch*, 23 USPQ2d 1780, 1784 (Fed. Cir. 1992). Because these references cannot be properly combined, claims 9-12 cannot be unpatentable in view of the combination. Therefore, Applicants respectfully request withdrawal of the rejections of claims 9-12 under 35 U.S.C. § 103(a).

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**E. Rejections In View of Harada, Tabuchi and Chang**

The Office Action rejected claims 13 and 14 under 35 U.S.C. § 103(a) as being unpatentable over Harada and Tabuchi and in further view of Chang. As discussed above, Tabuchi cannot be properly combined with the references directed to air bearing sliders. Even in combination, the Harada and Chang references do not teach a method of manufacturing a slider body comprising the steps of forming a composite wafer comprising a layer of a first material and a layer of a second material, forming on the layer of second material a transducer basecoat portion containing a plurality of transducers, and defining an air bearing surface on each slider body, as required by independent claim 9. Therefore, independent claim 9 is not obvious in view of the cited references. Because claims 13 and 14 depend from claim 9, they are also allowable in view of the cited references. Applicants respectfully request withdrawal of the rejection of claims 13 and 14 under 35 U.S.C. § 103(a).

**V. New Claims**

Applicants present new claims 15 and 16. Applicants respectfully submit that the subject matter of the new claims is fully supported by the original specification. New claims 15 and 16 depend from claim 3, the allowability of which has been discussed above. Applicants respectfully request notice of the allowance of new claims 15 and 16.

**CONCLUSION**

Applicants have attempted in earnest to address each issue raised in the Office Action. Applicants respectfully submit that pending claims 1-16 are allowable and respectfully request notice to that effect.

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The Commissioner is authorized to charge any additional fees associated with this paper or credit any overpayment to Deposit Account No. 11-0982.

Respectfully submitted,

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**APPENDIX:  
MARKED UP VERSION OF SPECIFICATION AND CLAIM AMENDMENTS**

**IN THE SPECIFICATION**

Page 9, Lines 1-8

Pole tip recession 56 and alumina recession 58 are illustrated in FIG. 3. Because of the pitch at which slider 20 lies, these recessions result in a mechanical close point [height] 60 of slider 20 at interface 50. This pitch is exaggerated in FIG. 3 for purposes of description. Mechanical close point 60 is the point on slider 20 which is the shortest distance from the surface of magnetic disc 24. This distance is the mechanical close point height 62. As can be seen, pole tip fly height 64 is greater than mechanical close point height 62. In most cases, pole tip fly height 64 is up to about eight percent greater than mechanical close point height 62.

**IN THE CLAIMS**

2. (Amended) [A] An air bearing slider [of claim 1 wherein the means for supporting the transducer comprises] comprising:  
    a transducer having a pole tip for communicating with a disc;  
    a composite slider body with a front portion composed of a first material and a rear portion composed of a second material, the slider body having an air bearing surface defined on a disc opposing face of the slider body, where the air bearing surface comprises the front portion and the rear portion; and  
    a transducer basecoat portion attached to the rear portion of the slider body and containing the transducer;  
    wherein the pole tip is at a mechanical close point with respect to the disc during flight.
3. (Amended) The slider of claim 2, [where] wherein an interface of the first material and the second material comprises a latitudinal plane substantially perpendicular to the air bearing surface.
5. (Amended) The slider of claim [4] 3 wherein a thickness of the first material is as little as about half the thickness of the second material.